

Work Order ID 56628

March 3, 2010 8:13:56 AM



126.6604

Page 1

Item ID: D212-664-207TRN

Accept



Setup Start



Revision ID:

Item Name: Crosstube Turning Detail

Stop



Start Date: 08/03/2010 Start Qty: 1.00



Required Date: 08/03/2010 Req'd Qty: 1.00



Reference:

Approvals: Process Plan: *[Signature]*

Date: 10-3-08

Tooling:

Run Start



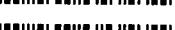
QC: _____

Date: _____

SPC (Y/N):

Date: _____

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr Revision Nbr

D212-664-247

Rev B

0.00

100



MORI SEIKI CNC LATHE LARGE

0.00

Mori Seiki

Mori Seiki CNC Lathe Large

Memo

- 1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA706
- 2-Turn first side as per Folio FA706
- 3- File transition lines smooth.

SCHP

Pb→

110



QC1- Inspect dimensions to dimension sheet

0.00

QC

Quality Control

Memo

0.00

120



MORI SEIKI CNC LATHE LARGE

0.00

Mori Seiki

Mori Seiki CNC Lathe Large

Memo

- 1-Turn second side as per Folio FA706
- 2- File transition lines smooth.
- 3-Remove sand and plugs

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D212-664-207TRN PAR #: _____ Fault Category: X-tubes. NCR: Yes No DQA: Date: 10/03/16
 Resolution: SCRAP Disposition: SCRAP QA: N/C Closed: Date: 10/03/16

NCR: 56628		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
10/03/07	# 100	tube cut too short. Employee Russ Day is worried tube measure 126.500". P.C. Lack of Attention.	U 10/03/10	-cannot be used for any other type of X-tube. USE FOR D21660-1 cuffs	✓ 10-3-11	✓ 10-5-12	✓ 10-3-10	S 10/03/09
								S 10/03/09

NOTE: Date & initial all entries

Work Order ID 56628

March 3, 2010 8:13:56 AM



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Item ID: D212-664-207TRN

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Setup Start



Revision ID:

Item Name: Crosstube Turning Detail

Stop



Start Date: 08/03/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 08/03/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run

Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

130



Operation
Description

QC1- Inspect dimensions to dimension sheet

Set Up/
Run Hours

0.00

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

QC

Quality Control

140



QC8- Inspect parts - second check

0.00

QC

Quality Control

150



Crosstubes Chemical Conversion

0.00

HandFXtube

Hand Finishing Crosstubes

Memo

0.00

Work Order ID 56628



March 3, 2010 8:13:56 AM

Page 3

Item ID: D212-664-207TRN

Accept



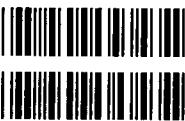
Setup Start



Revision ID:

Item Name: Crosstube Turning Detail

Stop



Start Date: 08/03/2010 Start Qty: 1.00



Cust Item ID:

Required Date: 08/03/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

160



Operation
Description

QC3- Inspect Part Finish

Set Up/
Run Hours

0.00

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

QC
Quality Control

170



Packaging

0.00

Memo

0.00

Packaging

Identify and stock in kanban rack
Location: _____

180



QC21- Final Inspection - Work Order Release

0.00

Memo

0.00

QC
Quality Control

W 10 03.10

Picklist Print

March 3, 2010 8:14:33 AM

Page 1

Work Order ID: 56628



Parent Item: D212-664-207TRN



Parent Item Name: Crosstube Turning Detail

Start Date: 08/03/2010

Required Date: 08/03/2010

Comments: IPP Rev:A New Issue 08-03-06 DD verified by:ec
IPP Rev B 08.04.02 Removed polish EC verified DD

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6008-132		Manufactured	No			110	Each	8.0000	1.0000			



Crosstube extrusion

Warehouse Loc Qty Loc Code

Location

Main Warehouse

LG

50892



AWM 10-3-09 ①

DART AEROSPACE LTD	Work Order:	56628
Description: Crosstube Assembly (205/212 Low Aft)	Part Number:	D212-664-247
Inspection Dwg: D212-664-247 Rev: <i>X B G</i> <i>10.03.07</i>		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

First Article Prototype

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.438	+/-0.010				
	2.680	+0.005/-0.000				
	2.680	+0.005/-0.000				
	2.687	+0.005/-0.000				
	2.802	+0.005/-0.000				
	2.906	+0.005/-0.000				
	3.009	+0.005/-0.000				
	3.112	+0.005/-0.000				
	3.250	+0.005/-0.000				
SIDE B	0.438	+/-0.010				
	2.680	+0.005/-0.000				
	2.680	+0.005/-0.000				
	2.687	+0.005/-0.000				
	2.802	+0.005/-0.000				
	2.906	+0.005/-0.000				
	3.009	+0.005/-0.000				
	3.112	+0.005/-0.000				
	3.250	+0.005/-0.000				
	128.27	+/-0.030				

Measured by:		Audited by:		Prototype Approval:	N/A
Date:		Date:		Date:	N/A

Rev	Date	Change	Revised by	Approved
A	08.11.07	New Issue (P/O D212-664-207)	KJ/EC	<i>[Signature]</i>

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

8 7 6 5 4 3 2 1

B

Item	Qty -247	Qty -247B	Part Number	Description
1	X		D212-664-247	CROSSTUBE ASSEMBLY (205/212 LOW AFT)
2	X		D212-664-247B	CROSSTUBE ASSEMBLY (214 LOW AFT)
3	1	1	D6008-132	CROSSTUBE
4	2	2	D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6	2	2	D3660-1	CUFF
7	4	4	MS21920-28	CLAMP (OR MS21920-30)
8	44	44	CR3212-4-06	RIVET (OR M7885/3-4-06)
9	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
10	A/R	A/R	SIKAFLEX-241/-291	SEALANT (OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6008-132
FINISHED LENGTH = 128.268±0.020 (BEFORE BENDING/TRIMMING)
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: D212-664-247 = 36.6 lbs (PER IIN-D212-664)
D212-664-247B = 36.6 lbs (PER IIN-D212-664)
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) WHEN MACHINING TAPER, RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D., EXCEPT UP TO 10% IS ALLOWED IN AREA NOTED.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2940-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2940-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE D2940-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 16) INSTALL D3660-1 CUFF AFTER CHEMICAL CONVERSION COAT BUT BEFORE PAINT, WITH A LAYER OF SIKAFLEX-241/-291 OR PROSEAL 890 OR MIL-S-8802 CLASS B2 SEALANT BETWEEN CUFF AND CROSSTUBE. SEAL EDGE OF CUFF TO ENSURE NO GAPS.
- 17) TOUCH-UP HOLES WITH CHEMICAL CONVERSION COAT.

SHOP COPY

RETURN TO

ENGINEERING

UNCONTROLLED COPY

SUBJECT TO AMENDMENT

WITHOUT NOTICE

WORK ORDER

NO. 56628*By 10-3-03***RELEASED**

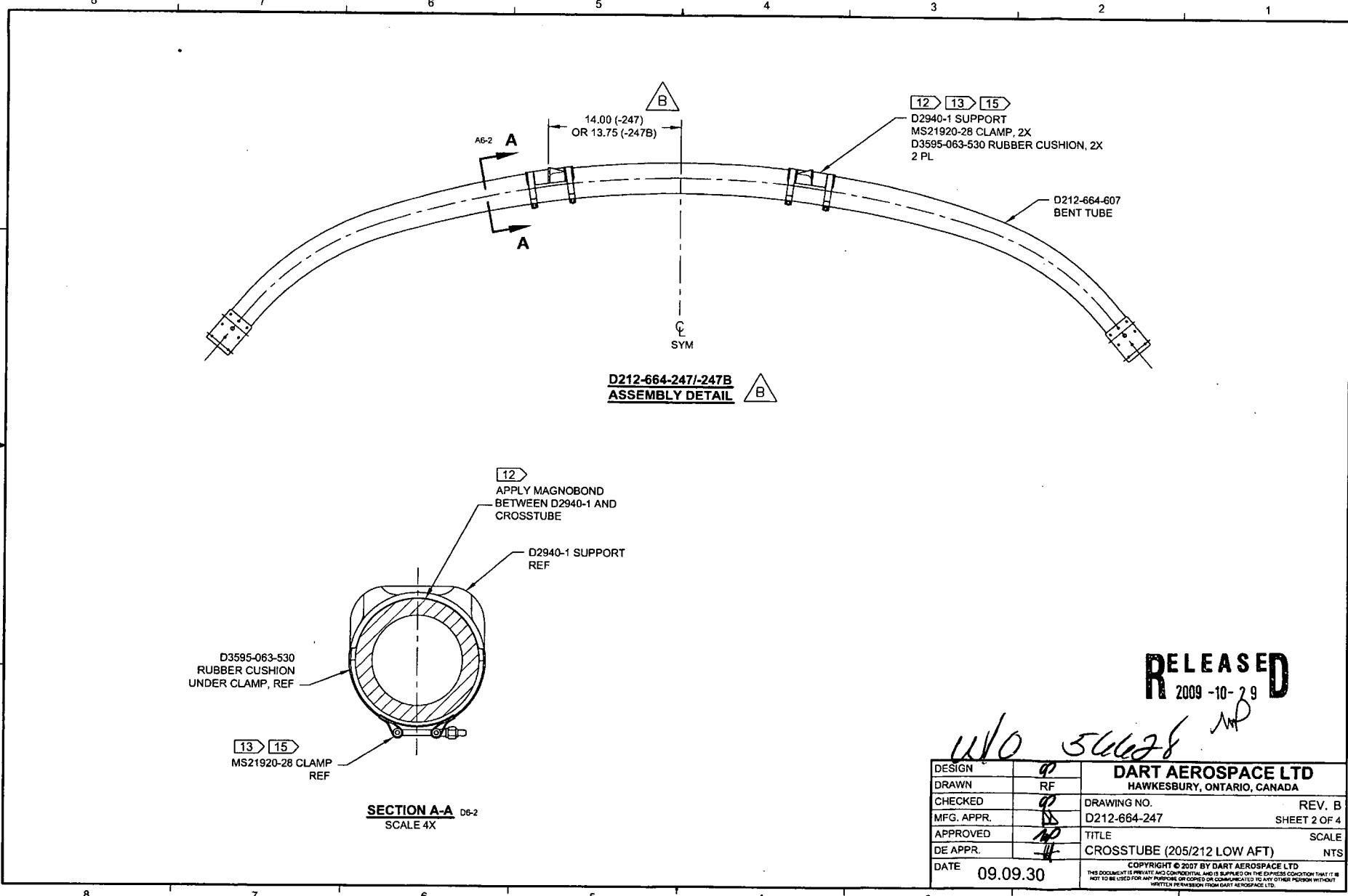
2009-10-7 9

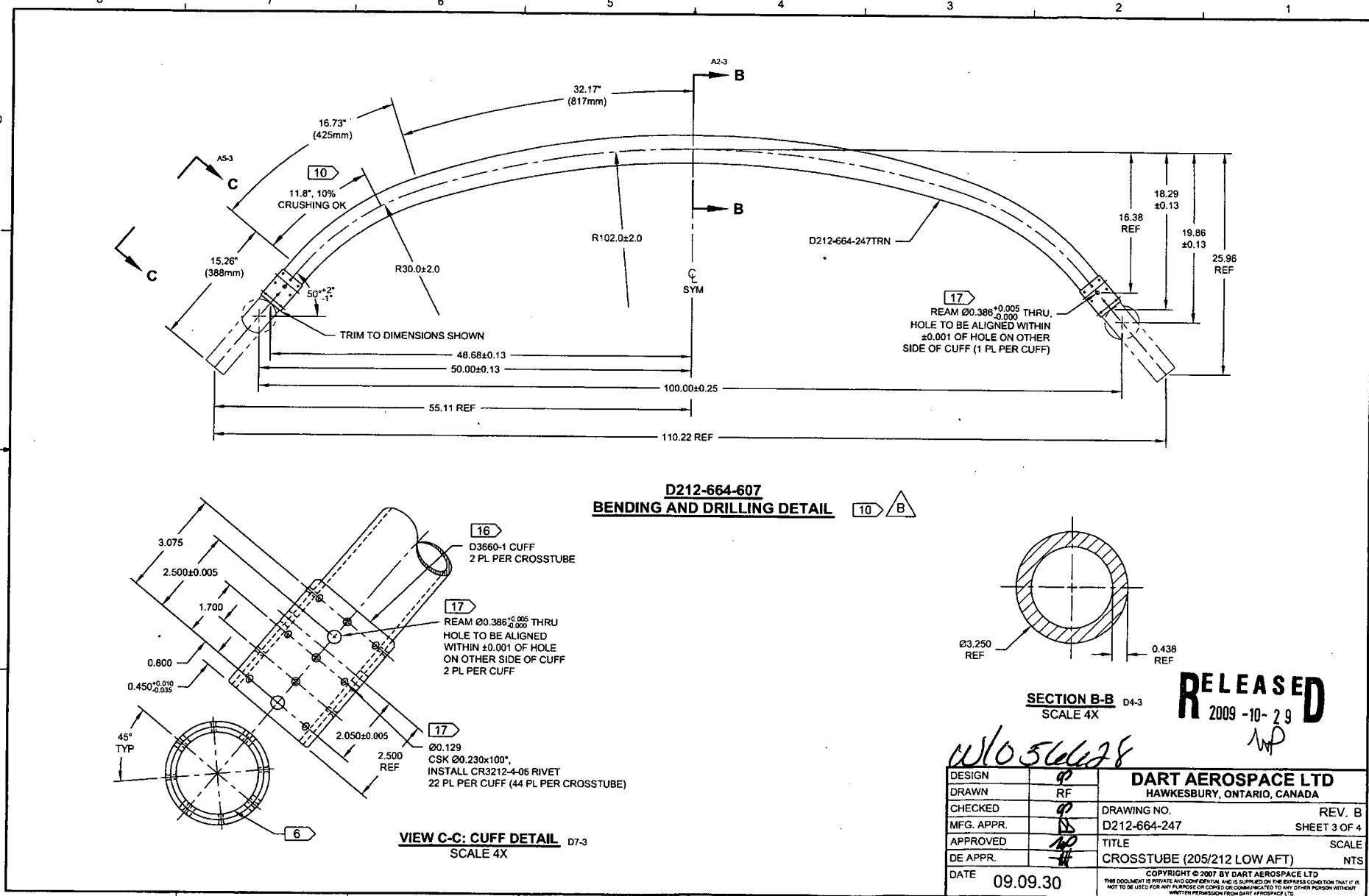
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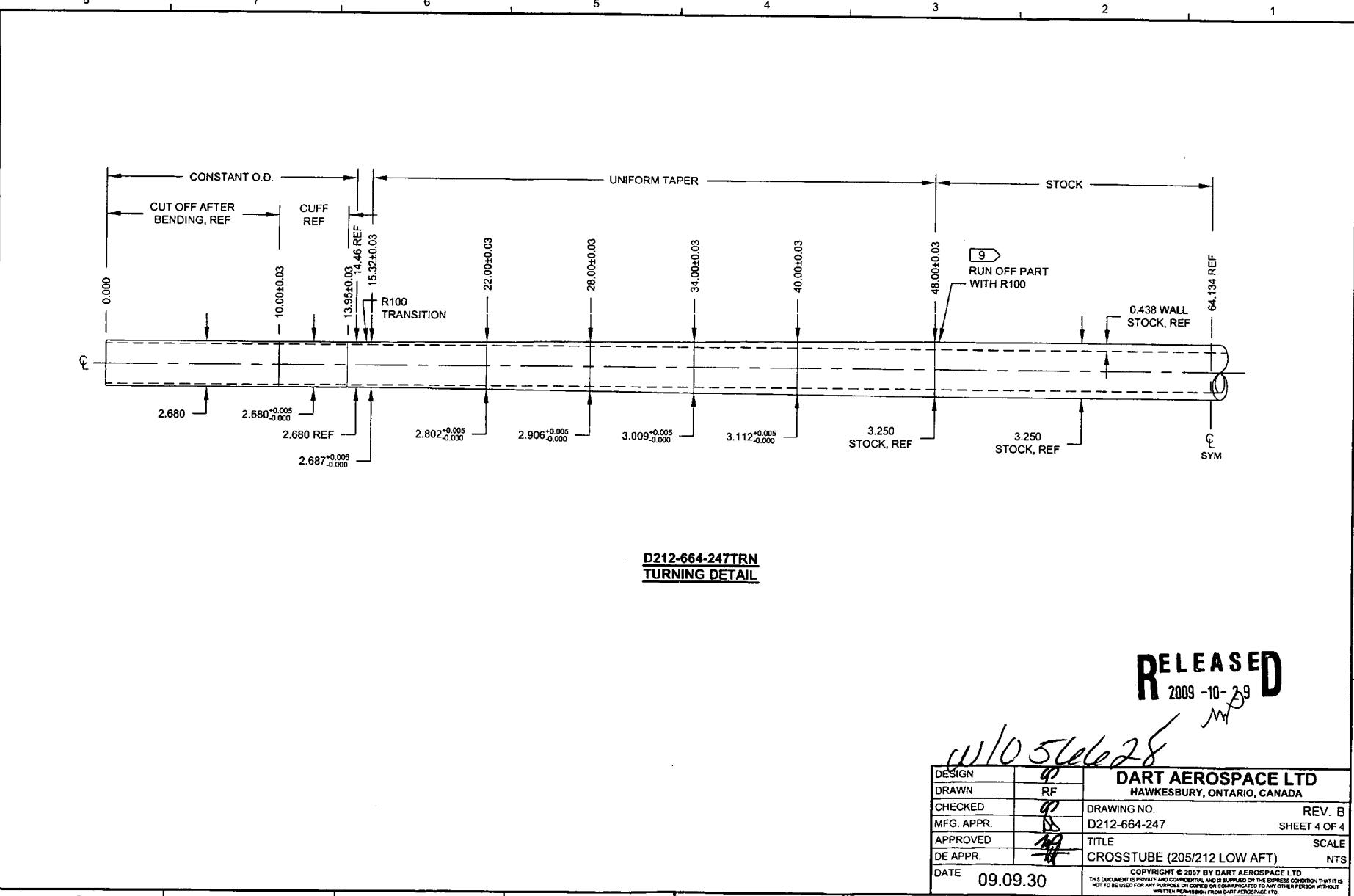
B	REVISE GENERAL NOTES/PART LIST; UPDATE TO CURRENT STANDARDS: ADD-247B (ZN C4-2, D5-2)		RF	09.09.30
A	NEW ISSUE		CP	07.07.07
REV.	DESCRIPTION		BY	DATE
DESIGN	<i>P</i>		DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF			
CHECKED	<i>P</i>	DRAWING NO.	REV. B D212-664-247	
MFG. APPR.	<i>NP</i>		SHEET 1 OF 4	
APPROVED	<i>NP</i>	TITLE	SCALE	
DE APPR.	<i>NP</i>	CROSSTUBE (205/212 LOW AFT)	NTS	
DATE	09.09.30		COPRIGHT © 2007 BY DART AEROSPACE LTD THIS DOCUMENT IS THE PROPERTY OF DART AEROSPACE LTD. IT IS RESTRICTED BY LAW FROM BEING COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

8 7 6 5 4 3 2 1

1







D212-664-207 - 128.28
 D212-664-209 - 127.826
 D205-566-103 - 146.98



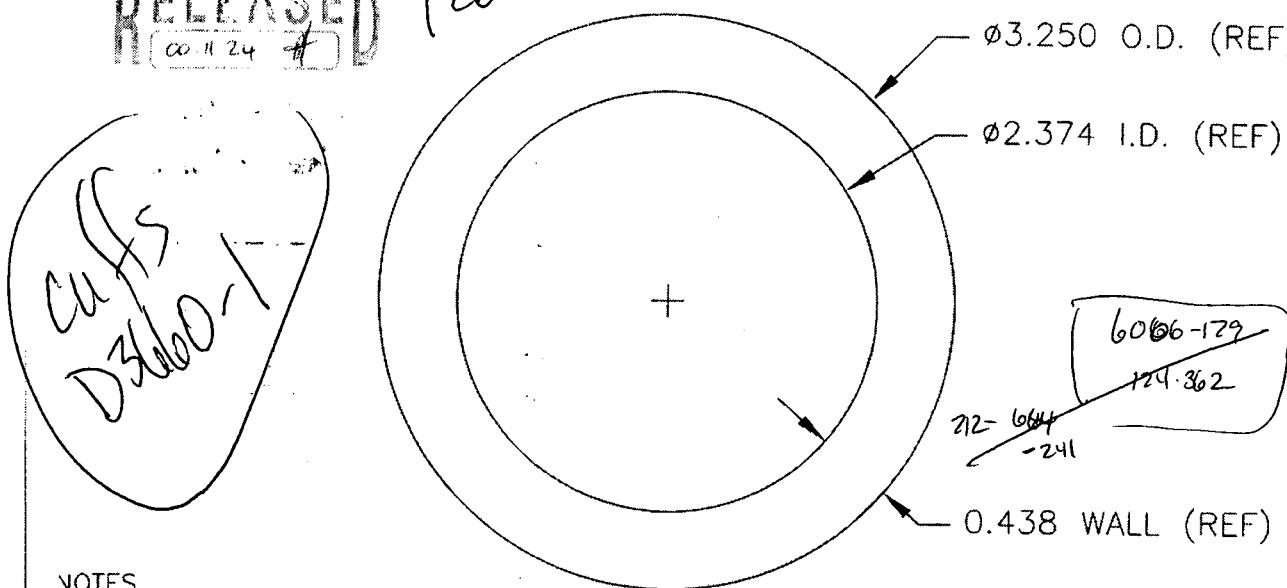
COPIED ISSUED

DESIGN	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA
CHECKED	APPROVED	DRAWING NO. D6008
DATE		REV. A SHEET 1 OF 1
00.11.17		TITLE CROSSTUBE MATERIAL
A	00.11.17	SCALE 1:1 NEW ISSUE

SPECIFICATION CONTROL DRAWING

RELEASED
00.11.24

126.560



NOTES

1) D6008-XXX CROSSTUBE
 LENGTH

WHERE XXX IS LENGTH IN INCHES
 EG. 180" LONG TUBE: D6008-180

212-664-141
 16005-128
 126.514
 212664-147
 6009-128
 126.528

2) MATERIAL: 3.250 OD x 0.438 WALL 7075-T6/T6511 (WW-T-700/7 OR QQ-A-225/9 OR QQ-A-200/11) SEAMLESS ALUMINUM TUBE.
 MINIMUM ULTIMATE TENSILE STRENGTH = 77 ksi
 MINIMUM YIELD TENSILE STRENGTH = 66 ksi

3) TOLERANCES ARE PER ASTM B210 AS FOLLOWS:
 O.D.: ± 0.008 MEAN (± 0.016 INCLUDING OVALITY)
 WALL: ± 0.020 MEAN (± 0.044 INCLUDING ECCENTRICITY)
 LENGTH: XXX $+0.125/-0.000$
 STRAIGHTNESS: 0.010" DEVIATION / 12" LENGTH

4) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

5) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

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